**ETHANE**

**4. FIRE HAZARDS**

**4.1 Flash Point:** 211°F

**4.2 Flammable Limits in Air:** 2.9%–13.0%

**4.3 Fire Extinguishing Agents:** Stop flow of gas

**4.4 Fire Extinguishing Agents Not to Be Used:** Currently not available

**4.5 Special Hazards of Combustion Products:** Not pertinent

**4.6 Behavior in Fire:** Not pertinent

**4.7 Auto Ignition Temperature:** 940°F

**4.8 Electrical Hazards:** Class I (group D)

**4.9 Burning Rate:** 7.3 mm/min

**4.10 Adiabatic Flame Temperature:** 2394°F

**4.11 Stoichiometric Air to Fuel Ratio:** 16.7 (calc.)

**4.12 Flame Temperature:** Currently not available

**4.13 Combustion Molar Ratio (Reactant to Product):** 5.0 (calc.)

**4.14 Minimum Oxygen Concentration for Combustion (MOCC):** Not listed

**5. CHEMICAL REACTIVITY**

**5.1 Reactivity with Water:** No reaction

**5.2 Reactivity with Common Materials:** No reaction

**5.3 Stability During Transport:** Stable

**5.4 Neutralizing Agents for Acids and Caustics:** Not pertinent

**5.5 Polymerization:** Not pertinent

**5.6 Inhibitor of Polymerization:** Not pertinent

**6. WATER POLLUTION**

**6.1 Aquatic Toxicity:** None

**6.2 Waterfowl Toxicity:** None

**6.3 Biological Oxygen Demand (BOD):** None

**6.4 Food Chain Concentration Potential:** None

**6.5 GESAMP Hazard Profile:** Not listed

**7. SHIPPING INFORMATION**

**7.1 Grades of Purity:** Research; pure

**7.2 Storage Temperature:** –128°F

**7.3 Inert Atmosphere:** No requirement

**7.4 Venting:** Safety relief

**7.5 IMO Pollution Category:** Currently not available

**7.6 Ship Type:** 2

**7.7 Barge Hull Type:** Currently not available

**8. HAZARD CLASSIFICATIONS**

**8.1 49 CFR Category:** Flammable gas

**8.2 49 CFR Class:** 2.1

**8.3 49 CFR Package Group:** Not pertinent.

**8.4 Marine Pollutant:** No

**8.5 NFPA Hazard Classification:**

- Health Hazard (Blue):............. 1
- Flammability (Red):................. 4
- Instability (Yellow):............... 0

**8.6 EPA Reportable Quantity:** Not listed.

**8.7 EPA Pollution Category:** Not listed.

**8.8 RORA Waste Number:** Not listed

**8.9 EPA FWPCA List:** Not listed

**9. PHYSICAL & CHEMICAL PROPERTIES**

**9.1 Physical State at 15°C and 1 atm:** Gas

**9.2 Molecular Weight:** 30.07

**9.3 Boiling Point at 1 atm:** –127.5°F = –88.6°C = 264.6ºK

**9.4 Freezing Point:** –278.9°F = –163.3°C = 89.2ºK

**9.5 Critical Temperature:** 90.1°F = 32.3°C = 365.5ºK

**9.6 Critical Pressure:** 708.0 psia = 48.16 atm = 4,873 lb/in²

**9.7 Specific Gravity:** 0.546 at –88.6°C (liquid)

**9.8 Liquid Surface Tension:** 16 dynes/cm = 0.016 N/m at –88°C

**9.9 Liquid Water Interfacial Tension:** 45 dynes/cm = 0.045 N/m at –88°C

**9.10 Vapor (Gas) Specific Gravity:** 1.1

**9.11 Ratio of Specific Heats of Vapor (Gas):** 1.19

**9.12 Latent Heat of Vaporization:** 211 Btu/lb = 117 cal/g = 4.90 X 10³ J/g

**9.13 Heat of Combustion:** –20,293 Btu/lb = –128,274 cal/g = –472.02 X 10³ J/g

**9.14 Heat of Decomposition:** Not pertinent

**9.15 Heat of Solution:** Not pertinent

**9.16 Heat of Polymerization:** Not pertinent

**9.17 Heat of Fusion:** 22.73 cal/g

**9.18 Limiting Value:** Currently not available

**9.19 Reid Vapor Pressure:** Very high

**NOTES**

**1. CORRECTIVE RESPONSE ACTIONS**

**1.1 Notes:**

Evacuate.

Keep people away. Shut off ignition sources and call fire department. Stay away and use water spray to "knock down" vapor. Avoid contact with liquid. Notify local health and pollution control agencies.

**1.2 Notes:**

Exposure

**1.2.1 Fire:**

FLAMMABLE. Flashback along vapor trail may occur. May explode if ignited in an enclosed area. Cool exposed containers and protect men effecting shutoff with water. Let fire burn.

**1.2.2 Toxicity by Inhalation:**

Vapor: Inhalation will cause difficulty breathing. Not irritating to eyes, nose or throat. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.

**1.2.3 Toxicity by Ingestion:**

VAPOR: If swallowing, do not induce vomiting. Flush affected areas with plenty of water. DO NOT RUB AFFECTED AREAS.

**1.2.4 Toxicity by Inhalation:**

LIQUID: Will cause frostbite. Floats and boils on water. Flammable visible vapor cloud is produced. Does not irritate the eyes or throat. In high vapor concentrations, can act as simple asphyxiant. Liquid vapors are nonirritating to the eyes and throat.

**1.2.5 Toxicity by Ingestion:**

LIQUID: None

**1.2.6 Toxicity by Inhalation:**

LIQUID: Not harmful.

**1.3 Notes:**

Water Pollution

**1.3.1 Notes:**

Currently not available

**1.3.2 Notes:**

Currently not available

**1.3.3 Notes:**

Currently not available

**1.4 Notes:**

Currently not available

**1.5 Notes:**

Currently not available

**1.6 Notes:**

Currently not available

**1.7 Notes:**

Currently not available

**1.8 Notes:**

Currently not available

**1.9 Notes:**

Currently not available

**1.10 Notes:**

Currently not available

**2. CHEMICAL DESIGNATIONS**

**2.1 Notes:**

CG Compatibility Group: 31; Paraffin

**2.2 Notes:**

Formula: C2H6

**2.3 Notes:**

IM0/UN Designation: 2.0/1035 (Compressed)

**2.4 Notes:**

DOT ID No.: 1035 (Compressed) 2.0/1961 (Refrigerated)

**2.5 Notes:**

CAS Registry No.: 74-84-0

**2.6 Notes:**

NAERG Guide No.: 115

**2.7 Notes:**

Standard Industrial Trade Classification: 51114
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**JUNE 1999**